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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/623,198

07/18/2003

Bruce Baretz

ATMI-198-CON

2836

23448

7590

03/28/2006

EXAMINER

LE, THAO X

INTELLECTUAL PROPERTY / TECHNOLOGY LAW

PO BOX 14329

RESEARCH TRIANGLE PARK, NC 27709

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 03/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/623,198	BARETZ ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Thao X. Le	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2006.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 and 25-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 25-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>2/28/06</u>   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 2/28/06 has been entered.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2, 4-9, 11-13, 18-20 and 25-30 are rejected under 35 U.S.C. 102(b) as being anticipated by US 3819974 to Stevenson et al.

Regarding claim 1, 18 and 25, Stevenson discloses a light emitting assembly in fig. 3 comprising a solid-state device 11/12/13, col. 1 lines 61-62, coupleable with a power supply 19/21, fig. 3, constructed, and arranged to power the solid state device to emit from the solid state device a first, relatively shorter wavelength radiation, column 1

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line 27, and a down-converting luminophoric medium (phosphor) arranged in receiving relationship to said first, relatively shorter wavelength radiation, and which in exposure to said first, relatively shorter wavelength radiation, is exited to responsively emit radiation in the visible white light spectrum, column 3 lines 26-31 and column 4 lines 1-5.

Although the prior art does not specially disclose the 'white light' limitation, this feature is seen to be inherently teaching of that limitation because visible light would include white light. In addition, phosphor material inherently converts short wavelength light to white light, see Seder (5211467) in col. 2 lines 61-65.

Regarding claim 2, Stevenson discloses the light emitting assembly wherein the solid-state device and down-converting luminophoric medium are associated in a unitary structure, fig. 3.

Regarding claims 4-6, Stevenson discloses the light emitting assembly further comprising first and second electrical contacts 19/21 extending through said housing member 18 and coupleable to a power supply which is constructed and arranged for imposing a voltage on said solid state device to induce emission of said first, relatively shorter wavelength radiation outside the visible white light spectrum, wherein said down-converting luminophoric medium (phosphor) is continuously arranged in said interior volume of said housing in relation to said solid state device, wherein said down-converting luminophoric medium is arranged in spaced relation to said solid state device in said interior volume of said housing.

Regarding claims 7-9, 19, Stevenson discloses the light emitting assembly wherein said solid state device comprises a device which is selected from the group consisting of semiconductor light emitting diodes, semiconductor laser, column 1 line 27.

Regarding claim 11, Stevenson discloses the light emitting assembly wherein said solid state device comprises a semiconductor light emitting diode including a substrate and a multilayer device structure, fig. 2 and wherein said substrate comprises sapphire 3.

Regarding claim 12-13 and 30, Stevenson discloses the light emitting assembly wherein said solid state device comprises a solid state laser including an active material selected from the group consisting of III-V alloys and II-VI alloys, fig. 8(a), wherein said multilayer device structure includes layers selected from the group consisting of gallium nitride, fig. 3.

Regarding claim 20, Stevenson discloses the light emitting assembly wherein said first, relatively shorter wavelength radiation is down converted to between one and three distinct and separable regions of red and/or green, and/or blue light (visible light comprises three primary color blue/red/and green). Seder (5211467) discloses such inherency in col. 2 lines 61-65.

Regarding claims 26-29, Stevenson discloses the light emission device wherein the luminophoric medium comprises phosphor material, col. 3 line 31, and responsively emitting radiation in the green to yellow spectrum, wherein the LED comprises blue light (violet spectrum comprises blue spectrum), wherein the white light output comprises

primary radiation emission from the LED and secondary radiation emission from the luminophoric medium.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 3819974 to Stevenson et al in view of US 5208462 to O'Connor et al.

Regarding claim 3, Stevenson discloses the light emitting assembly further comprising a housing member 18, said housing member 18 defining therewithin an interior volumes with said solid state device and down-converting luminophoric medium being disposed in said interior volume, fig. 3.

But Stevenson does not disclose the housing member formed of a light transmissive material.

However, O'Connor discloses a light emitting assembly in fig. 1 comprises a light emitting diode 10, a down converting layer 12, and a housing member 14 formed of a light transmissive material. At the time the invention was made; it would have been obvious to one of ordinary skill in the art to use the teaching of O'Connor with Stevenson's device, because such light transmissive material is used to collect and focus light as taught by O'Connor, see abstract.

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over 3819974 to Stevenson et al in view of US 5578839 to Nakamura et al.

Regarding claim 10, Stevenson discloses the light emitting assembly wherein said solid state device comprises a semiconductor light emitting diode including a substrate and a multilayer device structure, fig. 2 and wherein said substrate comprises sapphire 3.

But, Stevenson does not disclose the substrate comprises SiC.

However, Nakamura discloses a LED device in fig. 1 having a multilayer device structure, a substrate 12 comprises SiC, sapphire, column 6 line 2. At the time of the invention was made; it would have been obvious to one of ordinary skill in the art to replace the Sapphire substrate of Stevenson with SiC substrate teaching of Nakamura, because such substrate replacement would have been considered a mere substitution of art-recognized equivalent values, MPEP 2144.06.

8. Claim 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 3819974 to Stevenson et al in view of US 5578839 to Nakamura et al., US 4845223 to Seybold et al and Applicant Admitted Prior Art (APA).

Regarding claim 14-17, Stevenson discloses the light emitting assembly wherein said solid-state device includes a violet light source.

But Stevenson does not disclose the light emitting assembly includes an ultraviolet light source, wherein said down-converting luminophoric medium comprises a material selected from the group consisting of perylene tetracarboxylic diimide fluorescent dye.

However, Nakamura discloses the light emitting assembly includes an ultraviolet light source. At the time the invention was made; it would have been obvious to one of ordinary skill in the art to use ultraviolet LED the teaching of Nakamura in Stevenson's device for intended purposed.

In addition, Seybold discloses a fluorescent dye medium consisting of comprises a material selected from the group consisting of perylene tetracarboxylic diimide fluorescent dye, abstract. At the time the invention was made; it would have been obvious to one of ordinary skill in the art to use the fluorescent dye teaching of Seybold to in the luminophoric medium layer of Stevenson because it would have improved light-fastness and convert light to fluorescent light with high efficiency in a broad wavelength range and good thermal stability as taught by Seybold, column 2 lines 42-54.



Furthermore, the Applicants admit in page 18 that the fluorescent materials claimed in claims 16-17 are commercially available. At the time the invention was made; it would have been obvious to one of ordinary skill in the art to use the teaching of Stevenson with the fluorescent materials commercially available as claim for intended used, MPEP 2144.07 and in the range as claimed, because it has been held that where the general conditions of the claims are disclosed in the prior art, it is not inventive to discover the optimum or workable range by routine experimentation. See *In re Aller*, 220 F.2d 454, 105 USPQ 233, 235 (CCPA 1955).

### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao X. Le whose telephone number is (571) 272-1708. The examiner can normally be reached on M-F from 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy can be reached on (571) 272 -1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

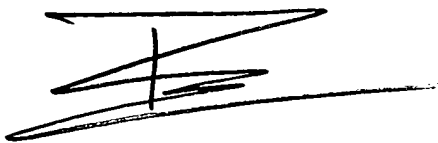
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you have questions on access to the Private PAIR system, contact the Electronic  
Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to be 'Thao X. Le', with a stylized, sweeping underline.

Thao X. Le  
21 Mar. 2006